Dr. Lavis presented a report on Vesuvius, describing various new sections cut through the tuffs and lavas of Vesuvius and the Phlegrean fields. The report announced the completion of the author's map of Vesuvius, and claimed to have established that the volcanic activity of the mainland had followed a regular course southwards. The same author announced the discovery of leucite in a lava from Etna, and in another paper attributed the conservation of heat in volcanic chimneys to latent heat set free on the passage of magma from a vitreous to a crystalline condition. Among the other papers were one by Dr. Claypole, who pointed out that in many places, and notably in the Appalachians, strata had been forced up from a depth greater than five miles, the supposed depth of the "layer of no strain"; and one by Mr. Logan Lobley, who attributed (1) the formation of lava to heat in the earth's interior inducing chemical action, (2) its ejection to the expansion due to change from a solid to a fluid state, and (3) explosive eruption to the access of sea- and land-water to the volcanic focus. In the discussion a good deal of misunderstanding seemed to arise from the confusion of "zone of no strain" with "zone of no cooling."

Prof. J. Milne gave tables to show the distribution of Japanese earthquakes in connection with years, seasons, months, and hours of the day. Further tables proved that the majority of earthquakes coincide with a high barometer, and that they are more frequent when the glass is falling or rising, than when it is steady. Earth-tremors are almost always associated with strong wind.

The local interest centred round papers on the Oolitic and Carboniferous rocks. Mr. Horace Woodward united the Cotteswold, Bridport, and Yeovil Sands under the name of Midford Sands; thought that the fullers' earth should be grouped with the Great Oolite which its upper beds sometimes replaced; and preferred to divide the Portlandian in Britain into an upper division, including the Portland, Tisbury, and Swindon *stone*, and a lower division, to hold the Portland Sand and Hartwell Clay.

A very interesting communication from Mr. Whitaker described the occurrence of the Bath Oolite at a depth of 1081 feet in the Streatham boring, the author hoping that the boring would be continued on the chance of meeting some porous rock under this which might have tapped off the Lower Greensand waters. Even if this did not take place, he trusted that the boring might be continued for purely scientific purposes, and as another opportunity of testing the question of coal under London.

Mr. Wethered correlated the Lower Carboniferous limestone of Gloucestershire with the Tuedian and Calciferous series of the north of England; and Mr. Handel Cossham described a series of trial shafts and headings which proved the existence of a reversed fault with very low hade on the northern part of the Bristol coal-field: the effect of the faulting of the strata was nearly to double the known coal resources in the western part of the field. A similar overthrust, bringing Carboniferous limestone to rest in dolomitic conglomerate at Tytherington was described by Mr. Winwood; and Mr. Ussher called in similar faults to explain the position of the Vobster limestone patches in Somerset. The latter author considered the Watcombe terra-cotta clay to be of Triassic age.

There were a few papers on the Archæan rocks, but little that was new was brought forward. Dr. Persifor Frazer considered that the central rocks of the nucleal ranges of the Antilles were Archæan; and Dr. Irving summed the evidence for life in this system, and found it wanting.

Mr. Bell's "Report on the Manure Gravels of Wexford" concluded that these were immediately pre-glacial in age, and that the Killiney gravels, and the marls, clays, and brick-earths of the coast were of later date. Mr. Clement Reid recorded *Betula nana*, *Salix polaris*, and *S. myrsinites* from the lacustrine deposit of Hoxne, to prove that it was formed in a severe climate preceded by a warmer one in which yew, bur-reed, and cornel flourished. A lengthy report from Dr. Crosskey on new erratic blocks in Yorkshire, Essex, Lancashire, and Leicestershire, was followed by a paper on a high-level boulder-clay (700 feet) in the Midlands, in which the same author inclined to the theory that it was floated from the nearest glacier and deposited by ice-foot and ice-bergs. Mr. Shore recorded Neolithic flakes and a hammer-stone found in peat below the tidal alluvium at the Southampton new dock excavation; and Mr. Lamplugh's report on the old subglacial sea-beach at Bridlington gave proof of some remarkable changes in the physical geography of the Yorkshire coast since the time of its formation.

Amongst the palæontological work was Prof. Rupert Jones's "Report on the Palæozoic Phyllopods"; and Prof. Williamson's on the Carboniferous flora, in which the author showed that the central vascular bundle of the Carboniferous Cryptogams contained a germ which developed into a persistent pith, while portions of the medullary tissue assumed the functions of a cambium. Dr. Irving described experiments to show that the vigour of plant life is increased until the percentage of CO_2 in the atmosphere equals the oxygen; and Mr. Whidborne briefly described many new species of Cephalopoda, Gasteropoda, Crustacea, and Conchifera from the Devonian of various localities. An important communication was made by Mr. H. F. Osborn, who traced back the Mammalian teeth to the tritubercular and thence to the triconodont type, and proposed a new nomenclature based on this principle. Prof. Gaudry commented on the gigantic size of some Tertiary Mammalia, Prof. Seeley on an Ichthyosaurus from Africa, and Prof. Marsh on the classification of the Dinosaurs. Mr. Smith Woodward and Prof. Bassani dealt with fish-remains from the Chalk, London Clay, and Lower Miocene.

Among the petrological papers we may note:—Dr. Sterry Hunt on mineralogical evolution, in which the author attempted to correlate chemical resistance with hardness, and this with condensation, in minerals; and to show that the greater stability of those (silicates) which belong to the more condensed types was shown in their superior resistance to decay. Dr. Sterry Hunt concludes that the great successive groups of stratiform crystalline rocks mark necessary stages in the mineralogical evolution of the planet. Mr. Joly decolorized beryl at 357° C., and has discovered twelve-sided basal prisms of iolite in the Dublin granite. Prof. Seeley raised a discussion on Oolitic structure, in which Dr. Gilbert instanced the formation of recent Oolites in the Great Salt Lake. Prof. Blake presented a long report on the Anglesey rocks, in which he described the passage of dolerites into hornblende and glaucophane schists, and then into slate-like rocks; and of gabbros into talcose schists. Mr. Watts described an igneous succession in Shropshire from old acid andesites through younger dolerites into picrites, without any break in the sequence; and Dr. Persifor Frazer exhibited and described some curious specimens of glassy and spherulitic oligoclase and quartz with peculiar optical properties. Though not precisely belonging to this Section, some clay models exhibited and described by Dr. Ricketts may here be mentioned, in which, by vertical pressure in the centre, reversed folds and inverted faulting had been produced. The author attempted to apply this method to explain the folding and cleavage of the Silurian slates in Wales.

NOTES.

SOME time ago Lord Crawford offered to present to Scotland his valuable collection of astronomical instruments at Dun Echt, on condition that suitable accommodation should be provided for it, and that it should be managed for the public benefit. The Secretary for Scotland, we are glad to learn, has accepted Lord Crawford's offer; and the Treasury has agreed to provide means for the erection of the necessary buildings. A committee of scientific men is engaged in examining different sites around Edinburgh which seem suitable for the erection of a national Observatory; and, according to the Edinburgh Correspondent of the *Times*, the choice seems to lie between the Braid Hills and the Blackford Hill, both of which are on the south side of the city. The same writer says that two proposals have been made for utilizing the old Observatory on the Calton Hill—the one that, after the instruments have been repaired, the place should be used as a popular Observatory; the other, that it should be attached to the Heriot-Watt Technical College for class-work in connection with the lectureship on astronomy there.

THE Mercers' Company, one of the oldest and wealthiest of the City Companies, is thinking of establishing an Agricultural College. A correspondent of the *Times* says it proposes to devote £60,000 to this object. According to the same authority, the intention is that the College shall be in Wiltshire, and that there shall be attached a farm of considerable extent, in which the pupils may practically apply the knowledge they gain, the institution being intended to benefit the sons of farmers and others who will be dependent on the successful culture of land for their future livelihood. The sum of £60,000 contributed by the Company would, it is hoped, be supplemented by a liberal donation from the Charity Commissioners, and the Company would of necessity be prepared to provide an adequate endowment.

THE new laboratories at Trinity College, Dublin, which are now open to all students of chemistry, comprise general laboratories for instruction in elementary chemistry, and quantitative and research laboratories. The latter are provided with all modern appliances, and have special rooms attached for analysis of gas and water, for assaying, and for ultimate organic analysis. The laboratories are under the general direction of Prof. Emerson Reynolds, F.R.S.

A STATUE of Ampère was unveiled on October 9, at Lyons, his native place. The ceremony took place before the President of the French Republic; and M. Cornu, a member of the French Academy of Sciences, delivered an elaborate address, in which he spoke of the importance of Ampère's discoveries.

THE Council of the Institution of Civil Engineers has issued a list of subjects upon which, among others, original communications are invited for reading and discussion at the ordinary meetings, and for printing in the minutes of proceedings of the Institution. For approved papers the Council has the power to award premiums, arising out of special funds bequeathed for the purpose.

THE Society of German Engineers offers a prize of 5000 marks (£250) for the best essay containing a critical estimate of experimental investigations concerning the passage of heat through heated surfaces, in its relation to material, form, and position of the latter, as well as to the kind, temperature, and motion of the heated substances. Competitors are to forward their treatises to the General Secretary of the Society by December 31, 1890.

THE Tokio Mathematical and Physical Society proposes, in order to commemorate the tenth anniversary of its foundation, to award a prize not exceeding 20 *yen* (£4) in value for the best original paper on the properties of the so-called asymptotic curves, and the relations (if any) existing between these curves and straight lines on a surface—in particular, an algebraic surface.

SEVERAL influential Chinese have subscribed large sums of money to aid in establishing a zoological garden at Shanghai. At present the institution will be merely a commercial undertaking, but it is hoped that ultimately the State will take it over. Amongst others, the Governor of Formosa has promised his help in the collection of specimens.

IN the last issue of the Journal of the Russian Chemical and Physical Society there is an interesting article on Prof. S. A. Wroblewski, whose death at Cracow we lately recorded. While a student of the Kieff University, Wroblewski took part in the Polish insurrection of 1863, and was exiled to Siberia, where he had to remain for six years. During his term of exile he elaborated a new cosmical theory, which on his return he hastened to submit to German men of science. Helmholtz received the young man cordially, but advised him to make at the Berlin laboratory certain experiments which would convince him of the erroneousness of his ideas. Wroblewski at once began earnest physical and chemical work, and never afterwards spoke of the theory of his youth. In 1874 he went to Strasburg, and there he published his first serious work, "Ueber die Diffusion der Gase durch absorbirende Substanzen." The flattering opinion expressed about this work by Maxwell in NATURE encouraged Wroblewski to continue physical work on the same lines. He was offered the Chair of Physics at the Cracow University, and the authorities of that institution gave him permission to spend a year at Paris in the laboratory of Sainte-Claire Deville, before beginning his University teaching. There Wroblewski discovered, in the course of his work on the saturation of water with carbonic anhydride under strong pressures, the hydrate of carbonic oxide, and that discovery became the starting-point of a series of works on the condensation of gases. His capital discoveries, made in association with M. Olszanski, which resulted in the condensation of oxygen, azote, and hydrogen, are well known. He was making preparations for an elaborate volume on the condensation of hydrogen, when he perished by accident. While working late in the night in his laboratory, he fell asleep, and in his sleep he overthrew a kerosene lamp. His clothes began to burn, and the wounds thus received resulted four days later in death. The Journal gives a complete list of Wroblewski's works.

AN interesting archæological discovery has been made in the tidal river Hamble, near Botley, Hants. A boathouse is being built at the point of the junction of the Curdridge Creek on the river, some distance above the spot where there is a still existing wreck of a Danish man-of-war. While the mud and alluvial soil were being removed to make sufficient waterway, something hard was encountered, which on being carefully uncovered proved to be a portion of a prehistoric canoe. It is about 12 feet long by 2½ feet wide, beautifully carved, and in a fairly good state of preservation.

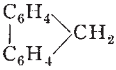
THE other day a peasant at Vestervang, in West Jutland, found a splendid piece of amber in a marl pit, weighing 1½ pound.

M. HALLEZ has published, in the first number of the *Revue Biologique du Nord de la France*, an interesting paper on the natural scavengers of various beaches of Northern France. At Boulogne, the species *Nassa*, which is very abundant, performs the useful office of destroying all dead animal relics. At Portel, *Nassa* is scarce, but *Eurydice pulchra* is very abundant, and takes the business in hand. At Cape Alprech, there are neither *Eurydice* nor *Nassa*, but *Ligia oceanica* fulfils their duties. At Equihen, these duties are undertaken by numerous *Orchestiæ*. It is worth noting that these four points are quite close to each other.

THE chemistry of the modern advantageous method of manufacturing chloroform from acetone and bleaching-powder has formed the subject of the successful researches of Messrs. Orndorff and Jessel. The first stage of the reaction is found to consist in the formation of methyl chloral, $CH_3 . CO . CCl_3$, which is subsequently acted upon by the hydrate of calcium formed at the same time, with production of chloroform and calcium acetate. The changes are expressed by the following equations:—

$$2CH_3 . CO . CH_3 + 6CaOCl_2 = 2CH_3 . CO . CCl_3 + 3Ca(OH)_2 + 3CaCl_2 ;$$
$$2CH_3 . CO . CCl_3 + Ca(OH)_2 = 2CHCl_3 + Ca(C_2H_3O_2)_2.$$

Calculated from these equations, the yield of chloroform should be 206 per cent. of the weight of acetone employed. As a matter of fact, the process has now reached such a state of perfection that as much as 188 per cent. is actually obtained in the best manufactories.

ANOTHER rich yield of new organic compounds has been obtained by M. Paul Adam by an application of the famous aluminium chloride reaction to the hydrocarbon diphenyl, $C_6H_5 . C_6H_5$. The number of new substances which have been synthesized by use of this reaction since its introduction by Messrs. Friedel and Crafts must now be enormous, and its value in assisting the completion of the fabric of descriptive organic chemistry cannot be over-estimated. The method of treatment consists in mixing the substance to be acted upon, in this case diphenyl, with aluminium chloride in a flask connected with an inverted condenser, to the end of which is attached a bent tube arranged so as to dip beneath the surface of mercury. If necessary, just sufficient heat is applied in order to keep the mixture in the liquid state; when this is effected the haloid compound of the radical to be introduced is allowed to slowly enter from a dropping funnel. Hydrochloric or hydrobromic acid is at once disengaged, the gas coming off steadily and readily indicating the progress of the reaction, which results in the substitution of the radical for hydrogen of the original substance. On completion of the reaction it is only necessary to place the mass in water, so as to decompose the aluminium chloride, when the black liquid becomes decolorized and the new substance separates as a colourless liquid or crystalline solid. When methyl chloride, CH_3Cl, is allowed to act in this way upon diphenyl in presence of aluminium chloride, M. Adam finds that the chief product is methyl-diphenyl, $C_6H_5 . C_6H_4 . CH_3$, in which the methyl group occupies the meta position. This new body is a highly refractive colourless liquid, boiling about 271°–277° C., and remaining liquid as low as $-21°$. It is isomeric with Dr. Carnelley's para-compound, the only one hitherto known. The ethyl and methyl ethers were readily obtained by the usual methods, and from the latter yellow syrupy substance, $C_6H_5 — C_6H_4 — CH_2 — OCH_3$, was obtained by the action of gaseous hydriodic acid, a highly interesting body, $C_6H_5 — C_6H_4 — CH_2 — OH$, the alcohol of the series, phenyl-benzyl alcohol, a very viscid liquid which eventually crystallized. The mono-methyl derivative, however, was not the only product of the primitive reaction, for M. Adam also succeeded in isolating a dimethyl phenyl, $C_{12}H_8(CH_3)_2$, boiling at 284°–290°. Moreover, a similar series of derivatives were next obtained containing ethyl instead of methyl; and finally the synthesis of the hydrocarbon fluorene,  $\begin{matrix} C_6H_4 \\ | \\ C_6H_4 \end{matrix} \Big> CH_2$, discovered by Berthelot in coal-tar, was effected by acting in a similar manner with methylene dichloride, CH_2Cl_2, upon diphenyl in presence of the accommodating aluminium chloride.

AN interesting discussion on "Bird Pests of the Farm" is printed in the current number of the *Zoologist*. All the writers who take part in the discussion agree that the habits of rooks have for some time been undergoing a remarkable change. Formerly, rooks lived chiefly on grubs and worms. Their supply of this kind of food has been greatly diminished by better farming, draining, and other improvements; and at the same time the birds have largely increased in numbers. Consequently they have been obliged to look for new sources of food-supply. They do very serious injury to cultivated crops, and devour enormous quantities of the eggs of game-birds. Mr. H. H. Scott says that during nesting-time, in districts where there are large rookeries, the heather on the moors and the fences in the fields are searched by rooks, yard by yard, for these eggs. Mr. Gilbert Millar, head-keeper to Mr. Creswell, of Harehope Hall, Alnwick, testifies that twenty-five or thirty years ago rooks were rarely known to take eggs; "but," he adds, "they have turned gradually worse every year since then, and now they have become a perfect pest and take all the early nests. Not one out of every twenty early nests that I have known of, these last few years, has escaped them." Pheasants' nests are sometimes built in rookeries, but, oddly enough, they are safer there than outside, as rooks never seem to look for them under their own nests.

AT the general meeting of the Council of the French Meteorological Office, Admiral Cloué, Vice-President, stated that the service of weather forecasts during the past year had reached 90 per cent. of successes, a figure never before surpassed. The number of climatological stations from which reports are regularly received is 143. Among the foreign stations we observe that two are being established in Madagascar. As an encouragement to observers on board ship, sixteen gold medals were presented during the year, for the best log-books received. Telegrams from America are regularly received, and include reports of storms, &c., met by ships in the Atlantic. M. Mascart stated that the work of the Departmental Commissions continued to improve each year, and that now there were only six departments which had not special Commissions. M. Vaussenat gave an interesting account of the observation of thunderstorms and of the photography of clouds and lightning on the Pic-du-Midi, and M. Janssen urged the importance of cloud photography at regular intervals, and of a systematic study of cloud formations and modifications.

THE Meteorological Report of the Straits Settlements for the year 1887 contains, in addition to the usual monthly and annual summaries at the four principal Observatories: (1) a tabular statement of the mean annual and monthly rainfall at Singapore from 1869 to 1887; and (2) charts showing the mean annual range of various elements at Singapore from 1870 to 1887. The year 1887 has presented little that is striking or anomalous. The rainfall of the colony, which is represented by thirty-nine stations, has been more than in the previous year.

THE Royal Society of Tasmania has issued its Papers and Proceedings for 1887. Among the papers we may note the following: description of new rare Tasmanian Hepaticæ, by B. Carrington and W. H. Pearson; on the acclimatization of the salmon (*Salmo salar*) in Tasmanian waters, by W. Saville-Kent; a first list of the birds of Maria Island, by Colonel W. V. Legge; observations with respect to the nature and classification of the rocks of the Tertiary period, more particularly relating to Tasmania, by R. M. Johnson.

MESSRS. MACMILLAN AND CO. have just published the third edition of Lock's "Arithmetic for Schools." Simultaneously with this edition, a key to the work, by the Rev. R. G. Watson, has been issued. Mr. Lock explains that the solutions have been very carefully worked under his superintendence.

THE "Hand-book of Jamaica" for 1888–89, by A. C. Sinclair and L. R. Fyfe, has been issued. It is compiled from official and other trustworthy sources, and includes ample historical, statistical, and general information concerning the island.

A GUIDE to the Caucasus, by E. Weidenbaum, has been published at Tiflis by order of the Governor-General. It contains much archæological information.

WE have received the tenth volume of the third series of the Memoirs, and the first volume of the fourth series of the Memoirs and Proceedings, of the Manchester Literary and Philosophical Society.

THE University College of Liverpool, and the University College of Wales, Aberystwith, have each issued a calendar for the session 1888-89.

MESSRS. LONGMANS AND CO. have in the press the following works:—"A Hand-book of Cryptogamic Botany," by A. W. Bennett and George R. Milne Murray; "A Text-book of Elementary Biology," by R. J. Harvey Gibson; "Force and Energy: a Theory of Dynamics," by Grant Allen; and Part I of "Graphics; or, the Art of Calculation by Drawing Lines, applied to Mathematics, Theoretical Mechanics and Engineering, including the Kinetics and Dynamics of Machinery, and the Statics of Machines, Bridges, Roofs, and other Engineering Structures," by Prof. Robert H. Smith.

MESSRS. CHAPMAN AND HALL will shortly publish "Thirty Thousand Years of the Earth's Past History," by Major-General A. W. Drayson; and "Marine Engines and Boilers," by Mr. George C. V. Holmes.

AMONG the works announced by Messrs. Sampson Low and Co. are the following:—"Metallic Alloys; a Practical Guide for the Manufacture of all kinds of Alloys, Amalgams, and Solders used by Metal-workers, especially by Bell-founders, Bronze-workers, Tinsmiths, Gold and Silver Workers, Dentists, &c., &c., as well as their Chemical and Physical Properties," edited chiefly from the German of A. Krapp and Andreas Wildberger, with many additions by William T. Brannt; "The American Steam Engineer: Theoretical and Practical, with Examples of the latest and most approved American Practice in the Design and Construction of Steam-Engines and Boilers," for the use of engineers, machinists, boiler-makers, and engineering students, fully illustrated by E. Edwards, C.E.; "Science and Geology in Relation to the Universal Deluge," by W. B. Galloway, M.A., Vicar of St. Mark's, Regent's Park; "Technology of Textile Design: being a Practical Treatise on the Construction and Application of Weaves for all Textile Fabrics, with minute Reference to the latest Inventions for Weaving," containing also an appendix showing the analysis and giving the calculations necessary for the manufacture of the various textile fabrics, by E. A. Posselt, Head Master, Textile Department, Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.

DR. BIRKBECK HILL, the editor of Boswell's "Johnson," has nearly ready for publication through the Clarendon Press a collection of letters from David Hume to William Strahan, hitherto unpublished. In the preface he recounts the circumstances under which Lord Rosebery purchased the originals when the authorities of the Bodleian and of the British Museum had declined them. A "Life of Hume" has been prefixed, and the letters have been fully annotated.

WE have received a copy of a pamphlet entitled "The Technical Education of Engineers," a course of technical study recommended by the Manchester Association of Engineers to youths engaged in engineering workshops and other mechanical trades. There are practical hints as to the course to be pursued in each subject, and the names of books recommended by the Association are given. The little work, which only costs twopence, should be in the hands of all those for whose aid it was compiled.

THE Botanical Exchange Club of the British Isles has issued its Report for 1887. Mr. Arthur Bennett indicates the new county records in the plants contributed.

MR. SAVILLE-KENT, at present engaged in officially investigating and reporting upon the fish and fisheries of various of the Australian colonies, has accepted an invitation from Captain the Hon. F. C. Vereker and other officers of H.M.S. *Myrmidon*, to join that ship at Port Darwin and to take part in the marine natural history exploration of the northern and north-western Australian coast in association with the survey work now being conducted. Mr. Saville-Kent proceeds *viâ* Brisbane and Thursday Island, taking with him trawls, dredges, and other apparatus suited for the projected work.

THE Committee of the Sunday Lecture Society have decided that during the winter a course of twenty-one lectures shall be given in St. George's Hall, London, on Sunday afternoons, at 4 p.m., as in former years, beginning on October 21.

THE next ordinary general meeting of the Institution of Mechanical Engineers will be held on Wednesday, October 24, and Thursday, October 25, at 25 Great George Street, Westminster. The chair will be taken at 7.30 p.m., on each evening, by Charles Cochrane, Esq., Vice-President, in the absence of the President, Edward H. Carbutt, Esq., who is travelling in America. The discussions will be resumed on the following papers read at the last two meetings in May and August: description of Emery's testing machine, by Mr. Henry R. Towne, of Stamford, Connecticut, U.S.A.; description of the compound steam turbine and turbo-electric generator, by the Hon. Charles A. Parsons, of Gateshead. The following papers will be read and discussed, as far as time permits: description of the Rathmines and Rathgar township water-works, by Mr. Arthur W. N. Tyrrell, of London; supplementary paper on the use of petroleum refuse as fuel in locomotive engines, by Mr. Thomas Urquhart, Locomotive Superintendent, Grazi and Tsaritsin Railway, South-East Russia.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus* ♂) from India, presented by Miss Kate Marion Pope; a Brush-tailed Kangaroo (*Petrogale penicillata* ♂), a Laughing Kingfisher (*Dacelo gigantea*) from New South Wales, presented by Captain Philp; a Gazelle (*Gazella dorcas* ♀) from North Africa, presented by Mrs. Eugenio Arbib; a Brazilian Hangnest (*Icterus jamaicai*) from Brazil, presented by Mr. T. R. Tufnell; five —— Francolines (*Francolinus* —— 2 ♂ 3 ♀) from South Africa, presented by Captain Larmer; a Laughing Kingfisher (*Dacelo gigantea*) from Australia, presented by Mr. H. Butler; two Slowworms (*Anguis fragilis*), British, presented by Mr. Cecil L. Nicholson; two Alpacas (*Lama pacos*) from Peru, two Upland Geese (*Bernicla magellanica* ♂ ♀) from the Falkland Islands, three Crested Pelicans (*Pelecanus crispus*), South European, deposited; four Esquimaux Dogs (*Canis familiaris*, var.), a Bennett's Wallaby (*Halmaturus bennetti* ♀), a Vulpine Phalanger (*Phalangista vulpina*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE SOLAR PARALLAX FROM PHOTOGRAPHS OF THE LAST TRANSIT OF VENUS.—A preliminary value of the solar parallax, as obtained from the measurement of the photographs of the sun taken at the different American stations during the transit of Venus, of December 1882, has been recently published. This value is based upon the measured distances of the centres of the sun and of Venus on 1475 photographs, taken at ten stations, six in the United States, two in South America, and the remaining two at Wellington, South Africa, and Auckland, New Zealand. It compares as follows with the values deduced from the American and French photographs respectively of the transit of 1874:—

American 1882 ... ... $\pi = 8''\cdot847 \pm 0''\cdot012$
American 1874 ... ... $\pi = 8''\cdot883 \pm 0''\cdot034$
French 1874 ... ... $\pi = 8''\cdot80$

The value now found, though probably a close approximation to that which will be afforded by the complete discussion of all